ANCHOR QEA

614 Magnolia Avenue
Ocean Springs, Mississippi 39564
Phone 228.818.9626
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MEMORANDUM

To:	Gary Miller and Anne Foster U.S. Environmental Protection Agency	**Date:**	February 29, 2016
From:	John Laplante, P.E., Anchor QEA Wendell Mears, Anchor QEA David Keith, Anchor QEA	**Project:**	150557-01.01
Cc:	Phil Slowiak, IP David Moreira, MIMC		
Re:	Addendum 2, Operations, Monitoring, and Maintenance Plan San Jacinto River Waste Pits Time Critical Removal Action		

The following provides Addendum 2 to the Operations, Monitoring, and Maintenance Plan (OMM Plan) for the armored cap installed as part of the Time Critical Removal Action (TCRA) at the San Jacinto River Waste Pits Superfund Site (Site). This Addendum 2 to the OMM Plan ("OMM Plan Addendum") is submitted on behalf of International Paper Company (IP) and McGinnes Industrial Maintenance Corporation (MIMC), referred to collectively herein as the "Respondents".

The purpose of the OMM Plan Addendum is to present a camera security system for the armored cap. This OMM Plan Addendum identifies the proposed locations and method of mounting of the cameras and procedures for conducting monitoring of the armored cap using the camera security system. It is contemplated that more detailed procedures for conducting monitoring using the camera security system and for maintaining and inspecting the system will be proposed following approval of this OMM Plan Addendum and installation of the camera security system.

The proposed security camera posts and anchor blocks will be positioned as shown in Figure 1. The locations for the posts and anchor blocks were selected to provide optimal views of the armored cap and surrounding areas without impairing inspection and maintenance events. The anchor blocks will be precast either at a location on the armored cap or at a location outside the Site and moved to the locations shown. The proposed cameras, power

system, anchor blocks, and mast pipe for the camera security system are presented in Attachment 1. The structure is designed to withstand maximum wind speed of 110 mph in a three second interval. This design criteria is consistent with City of Houston building codes, which have been used as guidance since no other codes directly apply to this location. The drawings and sketches including in Attachment 1 illustrate the camera system, concrete anchor block, bolts and associated hardware, and mast pipe configuration for the proposed camera security system.

Each of the three proposed locations consists of two cameras powered by a battery and solar charging station. The paired cameras will provide 180 degree coverage, with the combination of the three locations intended to provide coverage of the capped area. The cameras will be operational 24 hours per day, 7 days per week.

The system utilizes video analytics to detect "motion" and is capable of remote monitoring and data retrieval. The cameras will be connected via a cellular network to a security monitoring firm. The monitoring firm will be alerted if motion analytics for any of the cameras are triggered. The monitoring firm will start notifying the Respondent's using the emergency contact list within 30 minutes of the "alert" until they have made contact with a live person. Following review of the situation with the monitoring firm, the Project Coordinator or his alternate will notify the USEPA Remedial Project Manager and others, as needed, in accordance with the Site Emergency Response Plan (Anchor QEA 2016). The current emergency contact list is attached to this memorandum (Attachment 2).

Reference

Anchor QEA, 2016. Emergency Response Plan, Prepared for U.S. Environmental Protection Agency, Region 6, on behalf of McGinnes Industrial Maintenance Corporation and International Paper Company. January 2016.

Figure

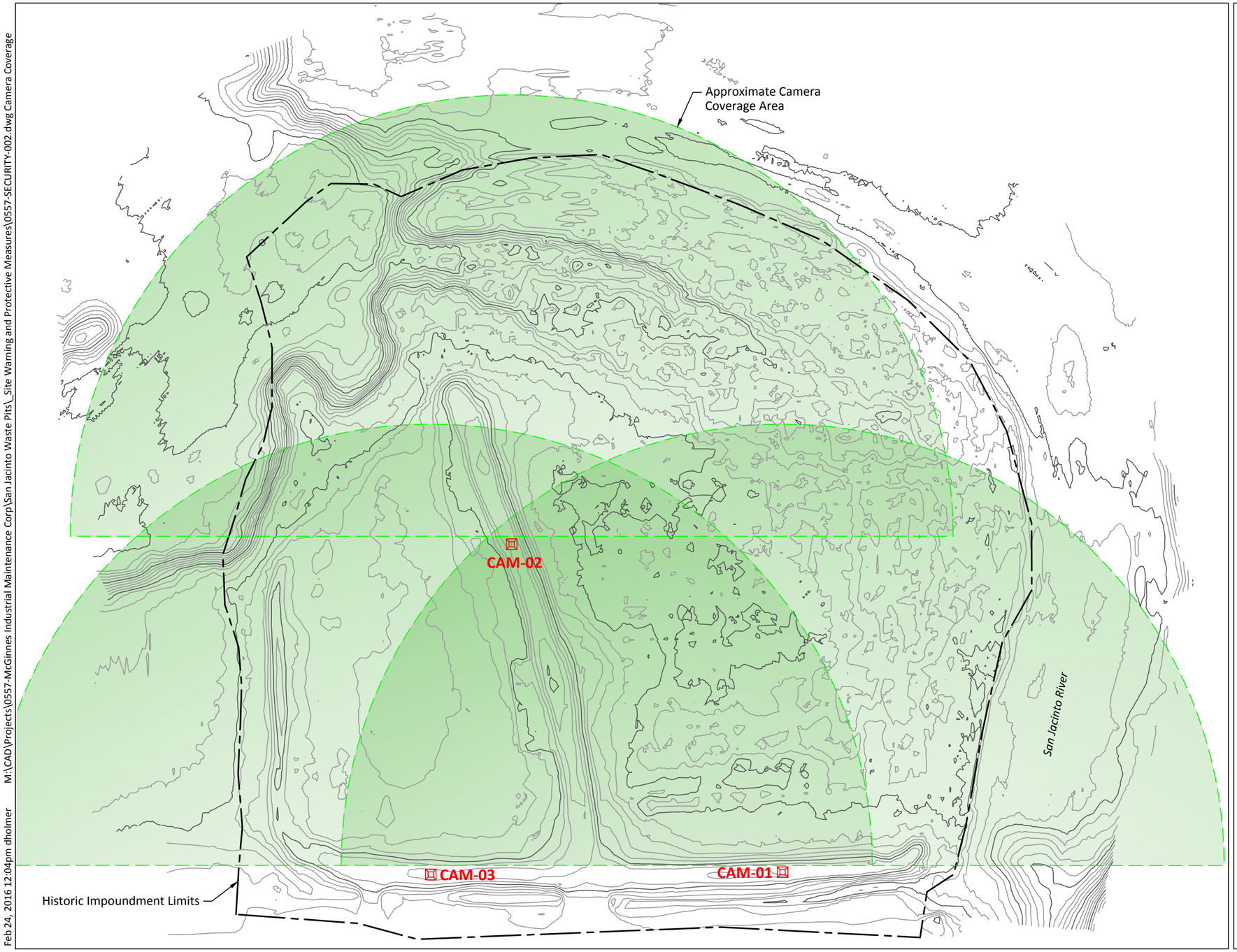
Figure 1 Proposed Security Camera Anchor Block Locations

Attachments

Attachment 1 - Specifications for Camera, Battery, Posts, and Anchor Blocks

Attachment 2 – San Jacinto Emergency Contact List

FIGURE



LEGEND:

- October 2015 Bathymetric and Topographic Contours (1 Foot Interval)
- Historic Impoundment Limits
- CAM-01 Proposed Security Camera Anchor Block Location
- Approximate Camera Coverage Area

SOURCE: Drawing prepared from survey provided by Hydrographic Consultants dated October 2015.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

0 120
Scale in Feet

M:\CAD\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits_Site Warning and Protective Measures\0557-SECURITY-002.dwg Camera Coverage
Feb 24, 2016 12:04pm dholmer

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Figure 1
Proposed Security Camera Coverage Area Site
Warning and Protective Measures
San Jacinto River Waste Pits Superfund Site

ATTACHMENT 1 SPECIFICATIONS FOR CAMERA, BATTERY, POSTS, AND ANCHOR BLOCKS

ASHTON Engineering, Inc.

COASTAL & STRUCTURAL DESIGN

5867 Crystal Springs Ln., Bellingham, Washington 98226 Phone 360.354.8179

CALCULATION SET

PROJECT NAME: AQEA San Jacinto Waste Pit Post & Anchors PROJECT: #21610.03
PROJECT LOCATION: Houston, TX

CLIENT: Anchor QEA
Randy Mason, PE
Huntington Beach, CA 92647
657.227.7454

The design covered by these calculations posts supporting security cameras, solar panels, battery enclosures and concrete anchors. Only that part of the structure immediately affected by this work and shown or considered within this calculation set has been reviewed. Ashton Engineering is not responsible for any other part of the structure or any work being designed or performed by others which may impinge upon this work. Attachment of the above mention components to the posts is by others. The bolted connection at the post base is designed to fail at or above the design wind speed.

LOADS:

Wind: Per ASCE 7-10, V= 140 to 150 mph (3 sec) for Category I structures.

Based on City of Houston design criteria use Basic Wind Speed of 110mph.

Wind Exposure: D

Seismic Design Category: A

Soil Bearing Pressure: 1,500psf (Assumed clay, sandy clay, silty clay soil)

STRUCTURAL CALCULATION INDEX

Department of Public Works & Engineering
Building Code Enforcement Branch

BUILDING CODE DESIGN CRITERIA

CONSTRUCTION CODES

Commercial

2006 International Building Code
2006 International Fire Code
2006 Uniform Mechanical Code
2006 Uniform Plumbing Code
2014 National Electrical Code
2009 International Energy Conservation Code, or
ASHRAE 90.1-2007

Residential

2006 International Residential Code
2009 International Energy Conservation Code

Note: All construction codes on this list have been amended by the City of Houston. To access the amendments, visit: http://www.houstonpermittingcenter.org/code-enforcement/publications.html

STRUCTURAL REQUIREMENTS

Basic Wind Speed	**110 mph (3-second gust)**	Soil Class	**Expansive***
Seismic Design Category	**A**	Wind Exposure Category	**B***
Weathering Probability	**Negligible (IRC)**	Ground Snow Load	**0**
Roof Design Load **	**IRC (*20-lbs/sq. ft.*)**	Frost Line Depth	**6 inches**
Typical (Equation 16-27)	**IBC ($L_r = L_0R_1R_2$)**	Maximum rainfall rate	**8 inches/hour**

* These are general requirements for Houston and certain conditions may vary depending on the location.

** Minimum roof loads shall be designed for the specific conditions in accordance with IBC Sections 1607.11.2.1 through 1607.11.2.4; and IRC Section R301.6, and Tables R301.6 or R301.2 (1) whichever is greater.

ENERGY REQUIREMENTS

Heating Degree Days **1371**

Climate Zone (Energy) **2-A**

PLUMBING REQUIREMENTS

Minimum Plumbing Fixtures — **See Table 2902.1 (of the Houston Amended Building Code)**

OTHER GENERAL REQUIREMENTS

Designs for Parking lots, Sidewalks and Driveways — **See Chapter 31 of the Building Code**

The Life Safety Ordinance for existing buildings — **Appendix L of the Building Code**

PLAN REVIEW REQUIREMENTS

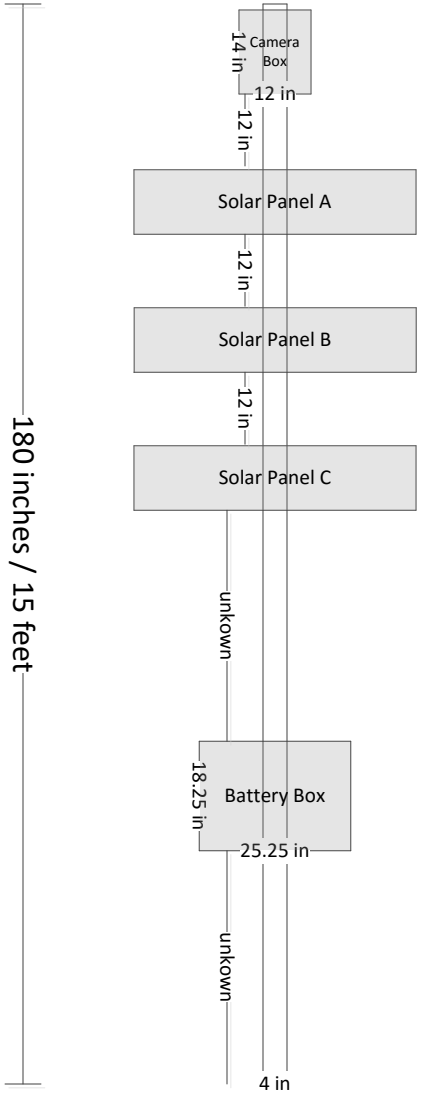
- 2 Sets of plans
- Energy Code Form or Applicable Software Report (http://www.houstonpermittingcenter.org/code-enforcement/publications.html)
- TDLR numbers for accessibility (http://www.license.state.tx.us/ab/ab.htm#techinfo)
- Asbestos Survey for existing building(s) – (TDH Toxic Substances Control Division • (800) 572-5548)

Note: This information is general in nature; for minimum submittal requirements, you may obtain a copy of the prerequisite checklist online or at the CACD office. For specific questions, consult with a Senior Plan Examiner (832) 394-8810 or Senior Inspector (832) 394-8840.

WEBSITE INFORMATION

Check plan review status and schedule inspections at - http://www.houstonpermittingcenter.org/city-of-houston-permits/online-permits.html
Code Enforcement/Code Update website - www.houstonpermittingcenter.org/code-enforcement.html
Public Works and Engineering website - www.publicworks.houstontx.gov
Planning and Development website - www.houstonplanning.com
Fire Department website - www.houstonfire.com
City Website - www.houstontx.gov

For questions please contact Lisa F. Brown at 832-394-9039 or email at - lisa.brown@houstontx.gov



Above drawing is to scale using Mechanical Engineering 1/32 : 1

Weatherproof NEMA 4X Rated Enclosure for PPT5k Camera Unit

"The aluminum battery enclosure provides superior corrosion resistance and heat dissipation. They are light weight combined with strength and durability make them ideal cabinets for applications throughout many industries. They perform well in harsh, high heat, high wear environments." datasheet

Battery Box
18.25"H x 25.25"W x 18.25"D

PPT5k Mobile Camera Unit:
14"H x 12"W x 7"D

Solar Panel
1.38"D x 21.5"W x 47"H

Pole Size
Height Unknown
4in Diameter if possible

WM Security Systems, Inc.
Customer: San Jacinto Waste Pits
Designed By: Justin Bolin
Date: 01/25/2015
Revision: 1

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PROJECT ANCHOR TEST POST
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AREAS

CAMERA BOX : (12)(14)/144 = 1.16 SF

SOLAR PANELS (3) : (3)(21.5)(47")/144 = 21.05 SF
(ASSUME ⊥ TO WIND)

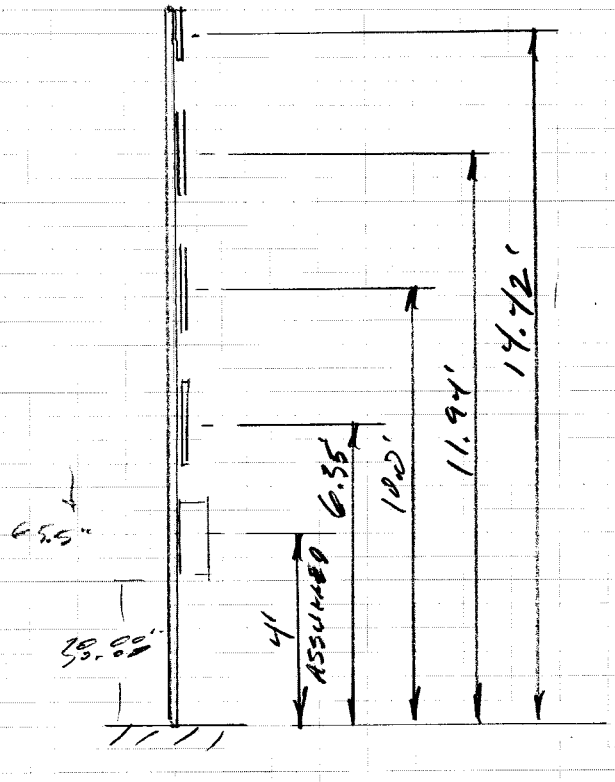
BATTERY BOX : (18.75)(25.25")/144 = 3.2 SF

4"ϕ (O.D.) PIPE : $\left(\frac{4"}{12}\right)$(15' − 14/12 − 3(20.0/12) − E.25/12)
= 2.44 SF

ΣA = 27.85 SF

TRY 3½" SCH 40 (4"ϕ O.D.)
WALL = 0.226"
S = 2.394 in³ 35 ksi
M_allow = 4.61'k 4/1.5 = 0.1'k
POLISH CK: @ 20 PSF
(20[1.10(14/12) + 21.05(10') + (3.2)(4')] = 4.6'k
1000 > 4.2

4" SCH 40: 4½" OD
M_cr = 6.2'k w/o DURATION INCREASE TYP.



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WIND LOADS PER ASCE 7-10

V = 140 TO 150 MPH (3 SEC) CAT 1

HOWEVER, DESIGN FOR V = 110 MPH 3-SEC

WIND PRESSURE $q_z = 0.00256 K_z K_{zt} K_d V^2$

$K_z = 1.03$ (EXP 'D')

$K_{zt} = 1.0$ FLAT $K_d = 0.85$

$q_z = 0.00256(1.03)(1.0)(0.85)(110)^2 = 27.2$ psf

EQN 29.5-1: $F = q_z G C_f A_f$

$F = 27.2(0.85)(1.65)(27.85\text{ SF})/1000 = 1.06$ k (TOTAL)

(SECTION 26.9; FIG. 29.5-1)

RESULTANT HT OF AREA: (RECT. AREAS)

$\Sigma M = (14.42')(1.16\text{ SF}) + (11.94')(21.05\text{ SF}) + (4')(5.2\text{ SF}) = 280.84$ CF

$\bar{Y} = 280.84/25.41 = 11.05$ FT

RESULTANT HT OF POST (4"ϕ): $(10.6')(0.33 \times 3') + (5')(0.33 \times 0.67') + (1.62')(0.33 \times 5.24') = 15.33$ CF

$\bar{Y}_{4"\phi} = 15.33/2.25\text{ SF} = 5.85$ FT

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WIND LOADS, CONT'D

NOTE: WIND LOAD GOVERNS

WIND ⊥ ON PANELS, ET. = 27.2(0.85)(1.65)(25.41 SF)
= 969.34 LBS

$M_{@BASE}$ = (969.3 LBS)(11.05 FT)/1000 = 10.71'k

WIND ⊥ ON POST = 27.2(0.85)(0.65)(2.2 SF)
= 34.24 LBS

$M_{@BASE}$ = (34.3)(5.25')/1000 = 0.20'k

TOTAL MOMENT AT BASE = 10.91'k

V_{TOT} = 1.0k

SREQ'D = 10.91'k (12)/0.66(35) = 5.66 in³

NOTE: 4" SCH 80 (4½" O.D.) S = 4.27 in³
0.337" WALL

w/o DURATION.
w/ A252 GR 3, F_y = 45ksi:
HSS 4.5 x 0.337 S = 4.03

M_{ALL} w/ 1.33 WIND DURATION
= (4.27)(35)(0.66)(1.33)/12
= 10.95'k ✓

M_{ALL} = (45)(0.66)(4.03)/12 = 9.97'k w/o DURATION, w/ 1.33 M_A = 13.26'k

M_{yield} = 9.97/0.66 = 15.11'k

$M_{PLASTIC\ HINGE}$ = (45)(5.50 in³)/12 = 20.62'k

USE HSS 4.5 x 0.337
A252 GR 3, F_y = 45ksi

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PROJECT ARCADIA BEACH POST

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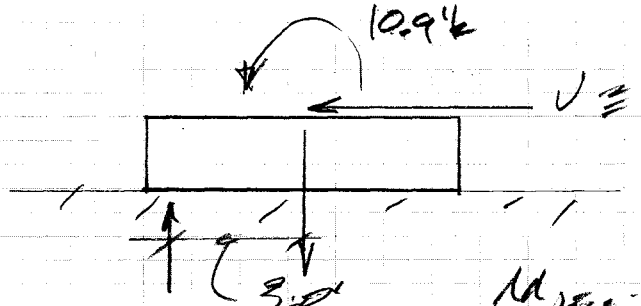
CONCRETE BASE

TRY 6.5' x 6.5' x 15", WT = 150.7#(6.35 cF) = 9,506 LBS



$M_{RESIST} = (3.0')(9.5^{1}k) = 28.5\ k >> 10.9$

TRY 6'ϕ x 6", $M_{DL} = (2.75')(7.2k) = 19.8\ k$

$\frac{19.8k}{0.9} = 6.81 < 2$

USE
TRY 6'ϕ x 15" $M_{DL} = 8.1k$

$M_{DL} = 22.28'k \quad 2.04 \times M_{DL} =$

BEARING AREA = (0.5')(6') = 3 SF

(3 SF)(1500) = 4500 LBS

(9.5k)(2.75') = 12.38'k > 10.9'k ✓ OK

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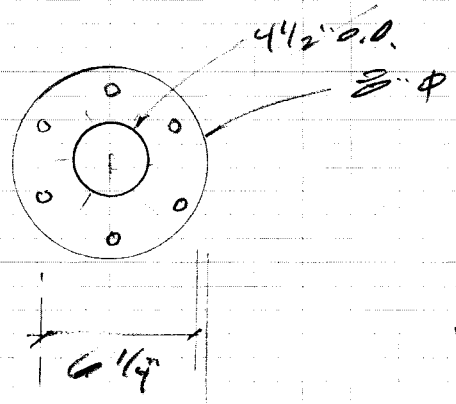
BOLTED PLATE: 6 BOLTS @ 60°



V/BOLT = 1004 lbs/6 = 167.33 LB (LOW)

M = 10.9'k
ARM = 6.25" = 0.521'
T/C = 10.9'k / 0.521' / 2 BOLTS
T = 10.46 k/BOLT
V = 167.3 LBS

TRY 7/16" Φ BOLTS A307
TENSILE AREA = 0.1063 in²
TENSILE STRENGTH BOLT = (60 ksi)(0.1063 in²) = 6.38 k ✓ C

PLATE 3/4"

S = (8")(0.75)²/6 = 0.75 in³ → M_ALL = 1.48'k } ASSUMES NO POST < 10.9'k W/O CALCS
IF WIDTH @ 6", S = 0.563 in³ → M_ALL = 1.11'k }

T_ALLT = (60)(0.1419) = (ASSUME TW= EDGE OF BOLTS GO INTO TENSION)

(A307 GR A) Fu

TRY 1/2" Φ T_ALLT = 8.514 k BACK OUT LEVER ARM.

ARM = 8" → T/C = 10.9k / 0.667' / 2 BOLTS = 8.17 k

7/8" EDGE DIST.

7 3/4" → 8.446

7 1/2" → 8.726 ← USE 7 1/2"

2.6k TO EDGE
T = 8.5 k ✓

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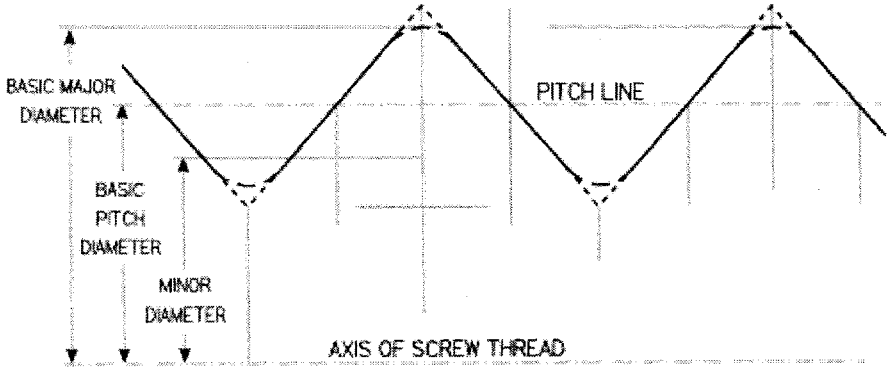
Thread Pitch Chart

Thread series cover designations of diameter/pitch combinations that are measured by the number of threads per inch (TPI) applied to a single diameter.

Coarse Thread Series (UNC/UNRC) is the most common designation for general application bolts and nuts. Coarse thread is beneficial, because they are less likely to cross thread, more tolerant in adverse conditions and facilitate quick assembly.

Fine Thread Series (UNF/UNRF) is commonly used in precision applications. Because of the larger tensile stress areas, they have high tension strength. However, a longer engagement is required for fine thread applications than for coarse series threads to prevent stripping.

8 – Thread Series (8UN) is the specified thread forming method for several ASTM standards including A193 B7, A193 B8/B8M, and A320. This series is used for diameters one inch and above.



Coarse Thread Series - UNC				Fine Thread Series - UNF				8-Thread Series - 8UN			
Nominal Size and Threads Per In.	Basic Pitch Dia. In.	Section at Minor Dia. Sq in.	Tensile Stress Area Sq in.	Nominal Size and Threads Per In.	Basic Pitch Dia. In.	Section at Minor Dia. Sq in.	Tensile Stress Area Sq in.	Nominal Size and Threads Per In.	Basic Pitch Dia. In.	Section at Minor Dia. Sq in.	Tensile Stress Area Sq in.
3/8 - 16	0.3344	0.0678	0.0775	3/8 - 24	0.3479	0.0809	0.0878	-- --	--	--	--
7/16 - 14	0.3911	0.0933	0.1063	7/16 - 20	0.4050	0.1090	0.1187	-- --	--	--	--
1/2 - 13	0.4500	0.1257	0.1419	1/2 - 20	0.4675	0.1486	0.1599	-- --	--	--	--
9/16 - 12	0.5084	0.162	0.182	9/16 - 18	0.5264	0.189	0.203	-- --	--	--	--
5/8 - 11	0.5660	0.202	0.226	5/8 - 18	0.5889	0.240	0.256	-- --	--	--	--
3/4 - 10	0.6850	0.302	0.334	3/4 - 16	0.7094	0.351	0.373	-- --	--	--	--

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PROJECT AERA POST

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WELDS

0.93k/in / 1/16 → x 4 = 3.72k/in

CIR = TOT = 14.14" IF 3/8"; 5.58k/in

SAY 2.5" OF WELD (3/8") = 13.95k (USE GUSSETS)
IN TENSION

BASE PLATE, CONT'D

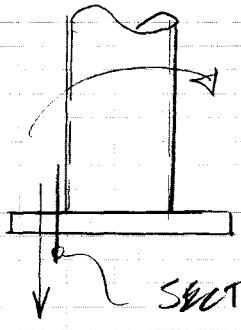
36 ksi:

CONSIDER AISC TABLE 15-1a

t = 3/4", b = 1.375" SAY 1 1/2"

AVAILABLE TENSILE STRENGTH, k/in 8.08k

IF b = 1 1/4", 9.7k



w/o GUSSETS

SECTION 7 1/2", $S = \frac{(7.5")(0.75)^2}{6} = 0.703 \text{ in}^3$

$M_{ALL} = \frac{(0.703)(36)(0.66)}{12} = 1.39$'k P.A.

1" PLATE: S = 1.25

$RM_{ALL} = 2.44$'k

USE GUSSETS

TRY GR 50 (A572) → $RM_A = 3.44$'k

USE GR 50 FOR BASE PLATE

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PROJECT AREA 105-

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REV CHECK T/C @ 2 BOLTS

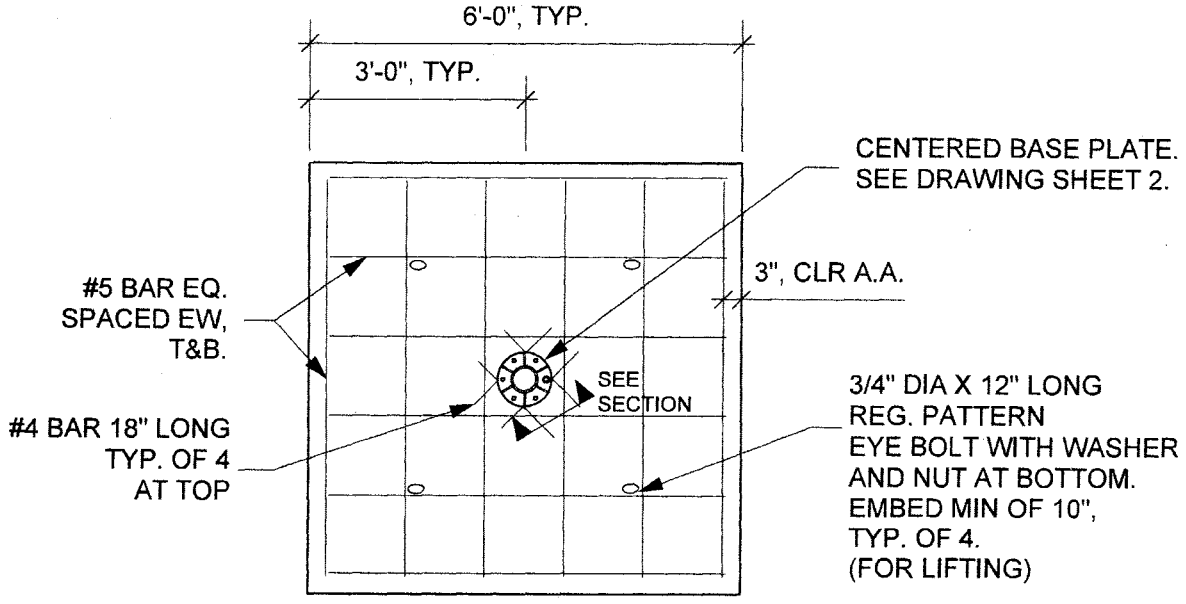
FROM ATTACHED DETAIL LEVER ARM = 7 7/8"

$$T/C = \frac{10.91k}{(7.625/12)} = 17.17k / 2 \text{ BOLTS} = 8.58k/\text{BOLT}$$

$\therefore T_u = 8.51k$

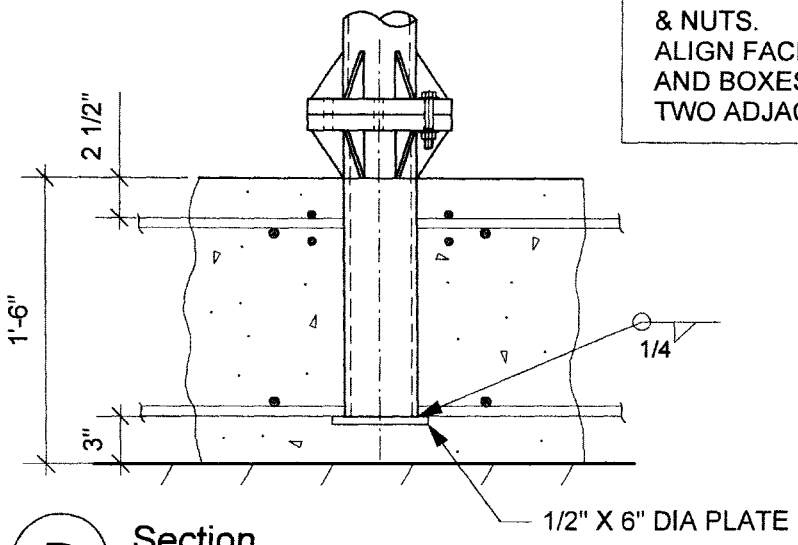
$-k$

(BOLTS FAIL)



A Plan - Concrete Base
Scale: 3/8" = 1'-0"

NOTE:
CONCRETE f'c = 3,500psi Min.
60 ksi REBAR (BARE STEEL)
HOT DIP GALVANIZE STEEL
WELDMENTS, BOLTS, WASHERS
& NUTS.
ALIGN FACE OF SOLAR PANELS
AND BOXES PARALLEL TO ANY
TWO ADJACENT BOLTS.



B Section
Scale: 1" = 1'-0"

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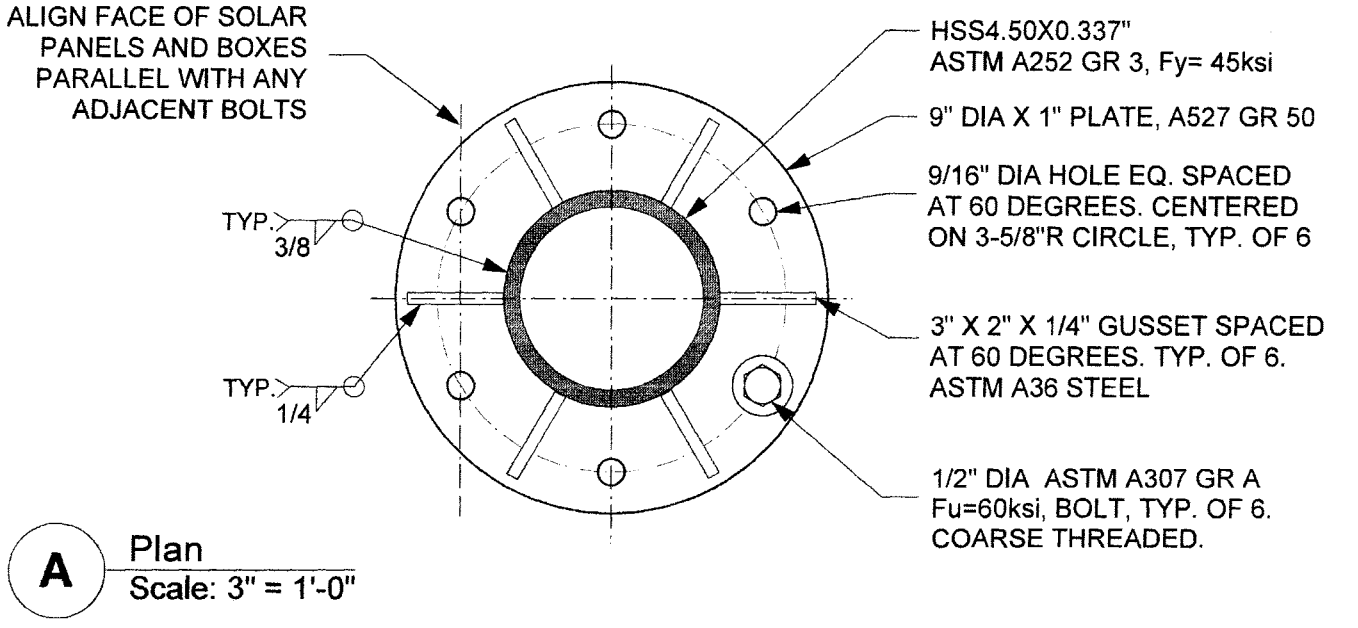
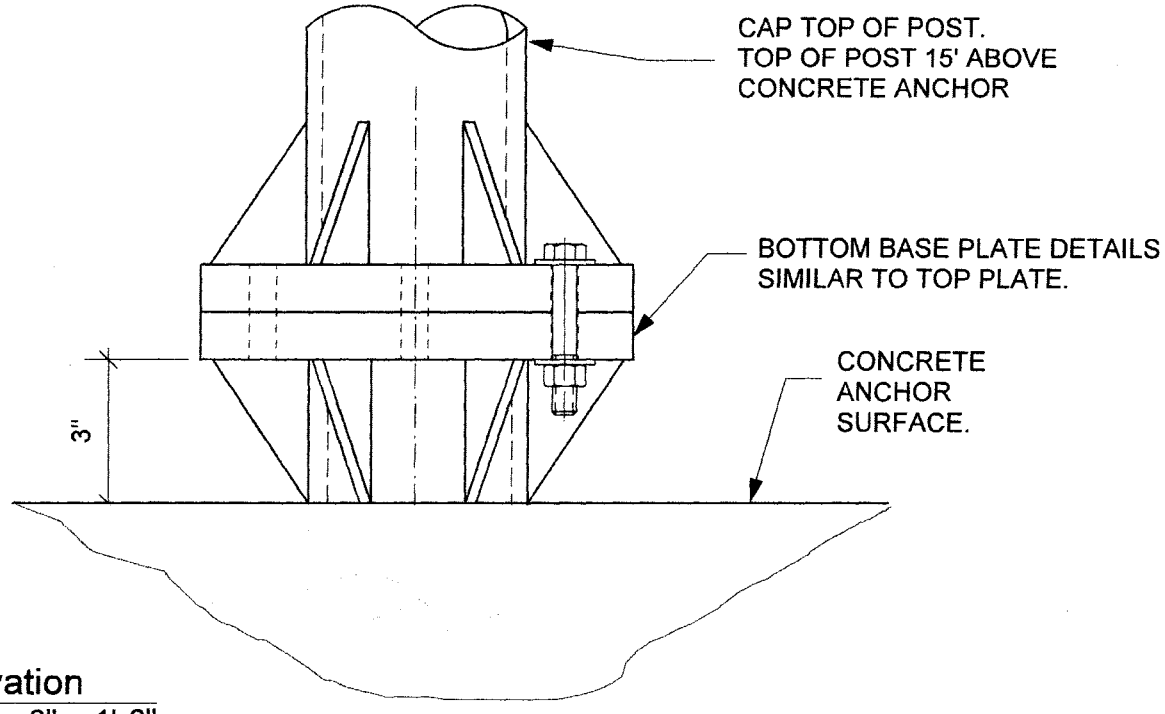
AQEA - San Jacinto Waste Pits
Security Post and Anchor

JOB NO.: 21610.03
SHEET 1 OF 2 **9 FEB 2016**



A Plan
Scale: 3" = 1'-0"



B Elevation
Scale: 3" = 1'-0"

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Coastal & Structural Design

AQEA - San Jacinto Waste Pits
Security Post and Anchor

JOB NO.: 21610.03
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ATTACHMENT 2
SAN JACINTO EMERGENCY CONTACT LIST

SAN JACINTO EMERGENCY CONTACT LIST

San Jacinto PRP Contractor:	David Keith: 228.224.2983 (dkeith@anchorqea.com)
Alternate:	John Laplante: 206.795.2676 (jlaplante@anchorqea.com)
Site Contact:	Ed Fendley: 281.686.9199 (efendley@usaenviro.com)
Alternate:	Cesar Garcia: 832.641.0265 (cgarcia@unaenviro.com)

Scenario:

Significant Damage to Armored Cap

- Emergency Response: *911
  - EPA Emergency Response: 866.372.7745
  - Superfund Hotline: 800.533.3508
- Federal: National Response Center: 800.424.8801
- EPA Superfund Contact:
  - EPA RPM- Gary Miller: 214.542.9617 (miller.garyg@epa.gov)
  - R6 Remedial AR/TX: Carlos Sanchez: 817.395.3804 (sanchez.carlos@epa.gov)
  - R6 Remedial Manager: John Meyer: 214.665.6742 (meyer.john@epa.gov)
- State TCEQ Contact:
  - Monica Harris: 512.660.1120 (monica.harris@tceq.texas.gov)
  - Craig Watts: 512.731.2604 (craig.watts@tceq.texas.gov)
- Harris County Contact:
  - Bob Allen: 832.493.2232 (rpallen@hcphes.org)
- Port of Houston Contact:
  - Linda Henry: 832.287.4397 (lhenry@poha.com)